

REMARKS

Reconsideration of this application, as amended, is requested.

Claims 1-3, 5, 6 and 8-14 remain in the application. Claim 1 has been amended to incorporate limitations that previously were in claims 4 and 7. Accordingly, claims 4 and 7 have been cancelled. Similar limitations were added to claims 13 and 14.

The Examiner noted the claim for convention priority rights. However, the Examiner advised the applicant of the need to file a certified copy of the priority document.

A certified copy of the priority document will be filed prior to payment of the U.S. government issue fee.

The Examiner noted that documents cited in the specification are not formally made of record unless those documents are submitted as part of an Information Disclosure Statement.

This Amendment is submitted concurrently with an Information Disclosure Statement. The Information Disclosure Statement includes a copy of Form PTO-1449 that identifies the references that were described in the original application. Copies of the identified documents are attached as well. The Examiner may charge our Deposit Account No. 03-1030 for the fees associated with the submission of this Information Disclosure Statement. The Examiner will note that all relevant parts of the documents submitted with this Information Disclosure Statement have been described in the original specification.

The Examiner objected to the drawings because they did not show the reference numerals 19' and 34.

The specification has been amended at paragraphs 0044 and 0049 so that the specification refers to the reference numerals 19' and 34. Accordingly, amendments to the drawings are not believed to be required.

The Examiner noted that the applicants and the undersigned attorney submitted an exact literal translation without paragraph numbers and another reformatted copy of the translation to facilitate the Examiner's review. The Examiner stated in the office action that the applicant also must submit a marked-up version of the substitute specification and a statement indicating that the substitute specification includes no new matter. This Amendment is submitted concurrently with a marked up version of the original English language translation. The undersigned attorney for the applicant hereby asserts that the substitute specification contains no new matter.

The Examiner noted that the original specification included reference to a trademark. The Examiner noted that trademarks presented in patent applications should be capitalized and presented in a manner that would not adversely affect the validity of the trademark. The Examiner's comments are noted. The mark KAPTON had been presented with an initial uppercase letter and with the parenthetical phrase identifying the word Kapton as a trademark belonging to DUPONT. That portion of the specification has been amended to delete the initial uppercase presentation of the mark in favor of an all uppercase presentation of the mark.

The Examiner objected to claims 1, 7, 12 and 14 and offered helpful advice for clarifying each of these claims. Claims 1, 12 and 14 have been amended to address these objections. Claim 7 has been canceled, and the portion of claim 7 that is incorporated into the other independent claims adopts the terminology suggested by the Examiner. The Examiner's careful review of these matters is appreciated.

Claims 1-10 were rejected under 35 USC 112, second paragraph. The Examiner identified portions of claims 1, 5, 6 and 10 that presented indefinite language.

Claims 1, 5, 6 and 10 have been amended to define the invention more clearly.

Claims 1, 2, 4-6, 13 and 14 were rejected under 35 USC 102(e) as being anticipated by Danielsson et al.

Independent claims 1, 13 and 14 have been amended to incorporate limitations of claim 7. Accordingly, the anticipation rejection based on Danielsson et al. is believed to have been overcome.

Claims 3, 7, 8 and 11 were rejected under 35 USC 103(a) as being obvious over Danielsson et al. in view of Sauli. The Examiner provided a very detailed analysis of the portions of these references that were believed to be relevant to the original claims.

The Danielsson et al. reference discloses a central thick metal layer 708 between first and second insulating layers 706, 710. First and second metal layers 704, 712 are provided respectively on the first and second insulating layers 706, 710 (col. 11, lines 3-14). An electrical potential is provided between the first and second metal layers 704, 712 (col. 11, lines 36-40). The central thick metal layer 708 is used as a converter material for converting electrical neutral particles into secondary electrons that leave the sheet 700 through holes 702. The secondary electrons move to a printed circuit board by a drift force generated by a drift field and are detected in the printed circuit board 916. The secondary electrons can be transported through consecutive perforated sheets (902a and 904a to 902d and 904d in FIG. 9) for those embodiments where there are a plurality of perforated sheets. Thus, the secondary electrons can be transported through holes 702 by means of the voltage applied to the thin metal layers of the respective sheets 700.

The invention defined by the amended claims herein is clearly distinguishable from the hypothetical combination of Danielsson et al. and the secondary

• references. In particular, the converter device and method defined by each of the claims remaining in the application includes a central insulating layer 26 arranged between first and second conductive layers 28, 30. A converter layer 24 is arranged on the free face of at least one of the first and second conductive layers 28, 30. The claimed converter device differs significantly from the Danielsson et al. device in that secondary electrons are transported through consecutive converter devices of the claimed invention, but cannot enter the respective converter devices. In particular, the central layer defined by each of the amended claims is an insulating material. Electrons cannot enter this central layer. In contrast, secondary electrons might enter the converter device of Danielsson et al. by entering the thick metal layer 708, which is used as a converter material. This can be a problem because a positive voltage is applied to the thick metal layer 708 and will certainly attract negatively charged electrons (col. 11, line 39). Col. 11, lines 49-53 of Danielsson et al. indicate the disadvantage of electron loss by passing through the holes because the holes are "flaring out down field" and thus "electrons passing through the holes 702 will have less probability of diffusing into the thick metal layer 708." Such a loss of electrons is not possible in the detector defined by the amended claims.

Secondary electrons generated in the thick metal layer 708 of Danielsson et al. can leave only through the hole 702 because the thick metal layer 708 is surrounded by insulating layers 706, 710. In contrast, the converter layer 204 defined by the amended claims herein is the outermost structure of an individual converter device, and thus secondary electrons can leave the converter layer through one complete surface of the converter layer 24.

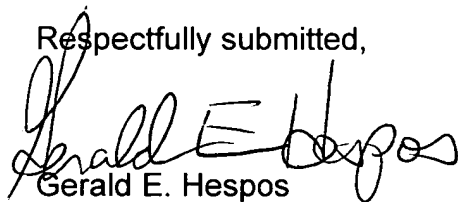
Sauli was cited by the Examiner merely in view of the dimensions and spacings of passages. However, Sauli does not overcome the deficiencies of Danielsson

- et al. as described above. In particular, Sauli does not disclose arranging detector devices in a cascade form, but rather arranges consecutive detector and amplifying means.

Claims 9, 10 and 12 were rejected under 35 USC 103(a) as being obvious over Danielsson et al. in view of Sauli and further in view of Gleason, U.S. Patent No. 3,956,654. The Examiner acknowledged that Danielsson et al. does not teach the specific neutron converter layer disclosed in these claims. The Examiner noted that the Gleason reference, for example, teaches a boron-10 converter layer for detecting neutrons. However, Gleason does not overcome the deficiencies of Danielsson et al. and Sauli as described above.

In view of the preceding amendments and remarks, it is submitted that the amended claims are patentable over the applied art, and allowance is solicited. The Examiner is urged to contact applicants attorney at the number below to expedite the prosecution of this application.

Respectfully submitted,



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